INDAVER WASTE TO ENERGY FACILITY RINGASKIDDY– ASSESSMENT OF COMPLIANCE WITH CONCLUSIONS ON BEST AVAILABLE TECHNIQUES FROM THE BREF FOR GENERAL PRINCIPLES OF MONITORING (2003) AND THE REF FOR MONITORING OF EMISSIONS TO AIR AND WATER FOR IED INSTALLATIONS (2018)

The full and complete BREF on the General Principles of Monitoring (July 2003) and the REF on Monitoring of Emissions to Air and Water form IED Installations (2018) is available at the EIPPC Bureau website: http://eippcb.jrc.ec.europa.eu/reference/

SCOPE
The Reference Document is a horizontal document and is not industry specific. Monitoring of emissions to air and stormwater apply.

It is noted that the REF on Monitoring of Emissions to Air and Water form IED Installations (2018), or MON REF, is a horizontal document which does not contain BAT conclusions. Whilst the MON-REF replaces the BREF on the General Principles of Monitoring (July 2003), or MON, the MON BAT Conclusions have been addressed with reference to the MON REF.

Conclusions on BAT	Applicability Assessment (describe how the technique applies or not to your installation)	State whether it is in place or state schedule for implementation
2.7 Monitoring Requirements to be Included with Emission Limit Values (ELVs) in Permits		
BAT 1. Make it clear in the permit that monitoring is an inherent and legally enforceable requirement and that it is as necessary to comply with the monitoring obligation as with the limit value/equivalent parameter.	Applicable – Monitoring of all emissions and limit values will be set out in the licence documents. The licence conditions represent a legally binding requirement.	Proposed facility – BAT to be in place prior to commencement
BAT 2. Specify clearly and unambiguously the pollutant or parameter being limited.	Applicable – Monitoring of air emissions will be in compliance with The Industrial Emissions Directive 2010/75/EC which requires continuous monitoring of specific	Proposed facility – BAT to be in place prior to commencement

	parameters and regular sampling of dioxins present in the flue gases prior to discharge from the stack to ensure compliance with emission limit values The following parameters will be continuously measured in the stack: total dust, TOC, HCl, HF, SO_2, NO_x, CO, NH_3, Hg, temperature and O_2. These continuous measurements will be accessible in 'real time' in the control room. There will also be biannual monitoring for heavy metals Cadmium, Thallium, Antimony, Arsenic, Lead, Chromium, Cobalt, Copper, Manganese, Nickel, Vanadium and Tin. PM_{10} and $PM_{2.5}$ will be monitored quarterly.	
BAT 3. State clearly the location where samples and measurements are to be taken. These should match the positions where the limits are applied. It is necessary to have suitable sampling measurement sections and/or measurement sites available. To this end, relevant requirements for space and technical facilities, such as safe measurement platforms and sampling ports, should also be stated in the permit.	Applicable – The emission and monitoring locations have been clearly identified in the relevant tables submitted with the application. The flue gas stack will be equipped with a monitoring platform for collecting biannual grab samples. The stormwater system will include 2 no. monitoring stations – one on the inlet to the firewater retention tank for verification of the quality of the	Proposed facility – BAT to be in place prior to commencement

	stormwater (note: this is not a licensed monitoring point. The monitoring station is connected to a cut off valve between the two tanks and is included for the purposes of triggering a cut off where required). The second one is on the outfall of the stormwater attenuation tank at SW-1.	
BAT 4. Specify the monitoring timing requirements (time, averaging time, frequency, etc.) of sampling and measurements.	Applicable – the proposed frequency of the air and stormwater sampling and reporting has been specified in Section 7 of the IE licence review application. It is proposed to provide continuous monitoring of TOC, pH, and conductivity for stormwater. The following parameters will be continuously measured in the stack: total dust, TOC, HCl, HF, SO_2, NO_x, CO, NH_3, Hg, temperature and O_2. These continuous measurements will be accessible in 'real time' in the control room. There will also be biannual monitoring for heavy metals Cadmium, Thallium, Antimony, Arsenic, Lead, Chromium, Cobalt, Copper, Manganese, Nickel, Vanadium and Tin along with PM_{10} and $PM_{2.5}$. Monitoring of flue gas will include continuous sampling of dioxins, analysed fortnightly.	Proposed facility – BAT to be in place prior to commencement

BAT 5. Consider the feasibility of limits with regard to available measurement methods. Limits must be set so that the monitoring required in order to determine compliance is within the capability of available measurement methods. For example, in order to obtain detectable quantities of dioxins from stack emissions it is usually necessary to sample over several hours. In this case the averaging time should correspond to this practical sampling duration. The limit setting process must therefore take into account the technical limitations of the relevant monitoring methods which will include consideration of detection limits, response times, sampling times, possible interferences, general availability of the methods and possible use of surrogates.	Applicable – The proposed Emission Limit Values (ELVs) for air have been based on the IE Directive (2010/75/EU) limits and the recent WI BAT Conclusion document dated June 2019. Stormwater emissions will have trigger values rather than ELVs. These will be agreed with the EPA once the facility is operational.	Proposed facility – BAT to be in place prior to commencement
BAT 6. Consider the general approach to the monitoring available for relevant needs (e.g. the scale). It is useful if the monitoring programme for a limit first describes the general type of monitoring required, before giving details of specific methods. The general approach will suit the considerations of location, timing, time-scale and feasibility, and take into account the options of direct measurement, surrogate parameters, mass balances, other calculations, and the use of emission factors. These general approaches are described in the BREF document.	Applicable – The proposed monitoring approach for the flue gas stack air emission has been based on the IE Directive (2010/75/EU) requirements. Although it is not a requirement of EU or Irish legislation, the monitoring equipment will include a state of the art continuous dioxin sampler which will be analysed every fortnight.	Proposed facility – BAT to be in place prior to commencement
BAT 7. Specify the technical details of particular measurement methods, i.e. the associated standard (or alternative) measurement method, and the units of measurement. Choosing measurement methods in accordance with the following priorities will lead to better reliability and comparability, provided they are reasonably practicable as detailed in the BREF document.	Applicable – The methods to be used for the monitoring of air and stormwater emissions have been set out in Section 7 of this application. The approach taken is compliant with BAT and is in accordance with the monitoring protocols previously agreed by the EPA for the Indaver Waste to Energy facility in Co. Meath.	Proposed facility – BAT to be in place prior to commencement
BAT 8.	Applicable –	Proposed facility – BAT to be in place prior to commencement

In cases of self-monitoring, either performed by the operator or by a contractor, clearly state the procedure for periodically checking the traceability of the self-monitoring. An accredited third-party testing laboratory should be used for this work.	Site EMS procedures, staff training, and role competency will ensure the correct interpretation of monitoring results. On-site monitoring will be conducted by appropriately qualified and certified third-party contractors in line with the required EPA standards to minimise the risk of uncertainty in monitoring results.	
BAT 9. State the operational conditions (e.g. production load) under which the monitoring is to be performed. If normal or maximum production at the facility is required, this should be quantitatively defined.	Applicable –Flue gas emissions are monitored during operating periods. The facility is expected to operate 24 hours per day, seven days per week with some scheduled shutdowns for maintenance.	Proposed facility – BAT to be in place prior to commencement
BAT 10. Clearly state the compliance assessment procedures, i.e. how will the monitoring data be interpreted to assess compliance with the relevant limit (as shown in Chapter 6 of the BREF document), also taking into account the uncertainty of the monitoring result as explained in the BREF document.	Applicable – Analysis of the monitoring results will be completed by a suitability trained and qualified staff member or external contractor. Daily reports of 30-minute measurements and the daily average stack measurements will be automatically generated. These reports will also indicate to the environmental department whether the limits have been exceeded. Monthly stack monitoring reports will be produced which summarise the results and provide an assessment of compliance in accordance with BAT.	Proposed facility – BAT to be in place prior to commencement

	Additional stack measurements will also be undertaken quarterly by external contractors. The result will be provided from the systems in a form that is directly comparable with the licence limits or trigger levels. All data that is produced on site from the internal monitoring systems e.g stormwater will be assessed to compare with the trigger limit via the control room. Trained operators man the control room at all times.	
BAT 11. Specify the reporting requirements, e.g. what results and other information are to be reported; when, how, and to whom. Reporting aspects of compliance monitoring are considered further in Chapter 7 of the BREF document.	Applicable – Site procedures detail the required roles and responsibilities and the required internal communication structures for emissions monitoring onsite. The emergency response plan provides for the notification of the relevant authorities as required. The facility's AER and PRTR Annual Returns will outline compliance with the emission limits and will be reported to the EPA.	Proposed facility – BAT to be in place prior to commencement
BAT 12. Include appropriate quality assurance and control requirements, so that the measurements are reliable, comparable, consistent and auditable. The main quality considerations may include those detailed in the BREF document.	Applicable – The site EMS procedures and staff training will ensure that all onsite monitoring is conducted by appropriately qualified and certified third-party contractors in line with the required EPA standards. These procedures also ensure	Proposed facility – BAT to be in place prior to commencement

	all laboratory testing is conducted by accredited laboratories as per the EPA requirements. Records and retained as required.	
BAT 13. Make arrangements for the assessment and reporting of exceptional emissions, both foreseeable (e.g. shutdowns, stoppages, maintenance) and unforeseeable (e.g. disturbances in the process input, or in abatement technique). The approach to these emissions is discussed in the BREF document.	Applicable – The site's Automated Control System will provide warnings of any failures and malfunctions throughout the facility. The EMP details the required action in the event of exceptional emissions including the procedures for reporting and quantifying. Any exceptional emissions will be reported to the EPA and such incidents will be summarised and included in the facility's AER.	Proposed facility – BAT to be in place prior to commencement